Large Language Models in Medical Education: Opportunities, Challenges, and Future Directions

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Abstract

The integration of large language models (LLMs), such as those in the Generative Pre-trained Transformers (GPT) series, into medical education has the potential to transform learning experiences for students and elevate their knowledge, skills, and competence. Drawing on a wealth of professional and academic experience, we propose that LLMs hold promise for revolutionizing medical curriculum development, teaching methodologies, personalized study plans and learning materials, student assessments, and more. However, we also critically examine the challenges that such integration might pose by addressing issues of algorithmic bias, overreliance, plagiarism, misinformation, inequity, privacy, and copyright concerns in medical education. As we navigate the shift from an information-driven educational paradigm to an artificial intelligence (AI)–driven educational paradigm, we argue that it is paramount to understand both the potential and the pitfalls of LLMs in medical education. This paper thus offers our perspective on the opportunities and challenges of using LLMs in this context. We believe that the insights gleaned from this analysis will serve as a foundation for future recommendations and best practices in the field, fostering the responsible and effective use of AI technologies in medical education.